

CLAIMS

What is claimed is:

1. A compound inkjet print head printer with a compound print head module, being characterized in that the compound print head module includes at least two print heads to provide ink droplets of a same color but with different sizes of ink droplets, so that the compound print head module simultaneously provides ink droplets of at least two sizes in a print stroke to form multi-gradation pixels with a reduced number of print strokes and an increased printing speed.
2. The printer of claim 1, further comprising an ink-detecting module to check the operation and relative position of the print heads of the compound print head module before ink droplet ejection.
3. The printer of claim 1, further comprising more than one tuning mechanisms to adjust the relative position of the print heads of the compound print head module.
4. The printer of claim 3, wherein the tuning mechanism includes a base, a screw-adjusting device and a sliding piece, the screw-adjusting device is mounted on the base in a manner to abut against the sliding piece through a top rod, so that when the screw-adjusting device rotates, the top rod is driven to push the sliding piece forth; two springs abutting against a side of the sliding piece opposite to the guide rod to achieve distance tuning; and the print heads being respectively mounted on their corresponding sliding pieces of the tuning mechanism.
5. The printer of claim 3, wherein the tuning mechanism is a motor control module.
6. A compound inkjet print head printer with a compound print head module, being characterized in that the compound print head module includes first and second print heads, wherein the volume of ink droplets from the first print head is N pico-liter (pl), the volume

of ink droplets from the second print head is M pl, N being larger than M , the ink droplets from the first and second print heads having at least one color, various gradations at proper pixel positions being printed with a combination of N pl ink droplets from the first and M pl ink droplets from the second print head.

5 7. The printer of claim 6, further comprising an ink-detecting module to check the operation and relative position of the first and second print heads of the compound print head module before ink droplet ejection.

8. The printer of claim 6, further comprising more than one tuning mechanisms to adjust the relative position of the first and second print heads of the compound print head
10 module.

9. The printer of claim 8, wherein one tuning mechanism includes a base, a screw-adjusting device and a sliding piece, the screw-adjusting device is mounted on the base in a manner to abut against the sliding piece through a top rod, so that when the screw-adjusting device rotates, the top rod is driven to push the sliding piece forth; two
15 springs abutting against a side of the sliding piece opposite to the guide rod to achieve distance tuning; and the first inkjet print head and the second inkjet print head being respectively mounted on their corresponding sliding pieces of tuning mechanisms.

10. The printer of claim 8, wherein the tuning mechanism is a motor control module.